

**REMARKS**

Claims 1-13 are pending in this application. By this Amendment, claim 1 is amended for form. Thus, no new matter is added.

Entry of the amendments is proper under 37 CFR §1.116 because the amendment to claim 1: (a) does not raise any new issue requiring further search and/or consideration because it is for form; (b) satisfies a requirement of form asserted in the previous Office Action; and (c) places the application in better form for appeal, should an appeal be necessary. The amendment is necessary and was not earlier presented because it is made in response to the §112 rejection raised in the final rejection. Entry of the amendment is thus respectfully requested.

**I. Claim 1 Satisfies the Requirements of 35 U.S.C. §112, Second Paragraph**

Claim 1 is rejected 35 U.S.C. §112, second paragraph. The rejection is respectfully traversed.

The Office Action asserts that the phrase "width" in claim 1 lacks antecedent basis. By this Amendment, claim 1 is amended as requested by the Office Action. Therefore, claim 1 satisfies all formal requirements under 35 U.S.C. §112, second paragraph. Withdrawal of the rejection is thus respectfully requested.

**II. The Claims Define Patentable Subject Matter**

**A. 35 U.S.C. §102(b) Rejection of Claim 1 Over Bauer**

Claim 1 is rejected under 35 U.S.C. §102(b) over U.S. Patent No. 2,816,302 to Bauer ("Bauer"). The rejection is respectfully traversed.

Bauer does not teach or suggest every feature of claim 1. Bauer does not disclose a screw part that includes a bevel lead having chamfers provided from the cutting edge along ridgelines between a crest face and a following flank of a thread, and between the crest face

and a leading flank of the thread, a width of each of the chamfers decreases with distance from the cutting edge, as recited in claim 1.

In the current application, the chamfers CF are formed from the cutting edge E along a ridgeline R between a crest face 2e and a following flank 2c and along another ridgeline R between the crest face 2e and a leading flank 2d. The width of each of the chamfers CF starts from a distance, e.g., 10 to 200  $\mu\text{m}$ , and decreases with the distance from the cutting edge E (see the specification, paragraphs [0019] and [0020], and Fig. 1a).

According to the current application, during the cutting rotation of the tap, the chamfers CF reduce a cutting load applied to the corner where the cutting edge E and the ridgeline R mutually intersect, and thus prevents creation of build-up edge therein and keeps a stable sharp shape of the cutting edge E of the bevel lead 2a. Further, during the returning rotation of the tap, because the width of the chamfer CF decreases with distance from the cutting edge E, the corner where the ridgeline R and the other face of the flutes 4 mutually intersect become sharp and prevent chips of a work from pinched in a gap between the chamfer CF of the bevel lead 2a and a female screw F formed in the work by the tap. Thus, the breaking of the tap is prevented (see the specification, paragraphs [0015], [0021] and [0022] and Figs. 1a, 3a and 5a).

The Office Action asserts that the front swedging tooth 23 of Bauer corresponds to the claimed chamfer (see Office Action, page 2, lines 19-21). This assertion is respectfully traversed.

The Office Action asserts that the front swedging tooth 23 of Bauer corresponds to the claimed chamfer (see Office Action, page 2, lines 19-21). This assertion is respectfully traversed.

Contrary to the Office Action's assertion, Bauer does not disclose the claimed chamfer. Applicant respectfully assert that Bauer merely discloses that the teeth 22, 23 and

29 have dulled edges that are formed between the cutting face 18 and the flank 31 of the bevel lead (see Bauer, col. 2 line 48 to col. 3 line 11, and Figs. 7 and 8). Bauer does not disclose chamfers that are formed on ridge of the screwed teeth. Therefore, Bauer does not disclose chamfers that are provided from the cutting edge along ridge lines between a crest face and a following flank of a thread, as recited in claim 1.

Thus, for at least these reasons, claim 1 is patentable over Bauer. Withdrawal of the rejection is respectfully requested.

**B. Section 35 U.S.C. §102(b) Rejection of Claim 1 Over Akira**

Claim 1 is rejected under 35 U.S.C. §102(b) over JP 57-189735 to Akira et al. ("Akira"). The rejection is respectfully traversed.

Akira does not teach or suggest every feature of claim 1. Akira does not disclose a width of each of the chamfers decreases with distance from the cutting edge, as recited in claim 1.

The Office Action, referring to Fig. 5 of Akira, asserts that chamfers 8 and 9 of Akira correspond to the claimed chamfer. This assertion is respectfully traversed.

Akira merely discloses that the chamfers 8 and 9 each have a width that increases with distance from the corners 15 of the cutting face 6 (see Akira, Figs. 4 and 5). Therefore, contrary to the Office Action's assertions, Akira does not disclose that a width of each of the chamfers decreases with distance from the cutting edge, as recited in claim 1.

Thus, for at least these reasons, claim 1 is patentable over Akira. Withdrawal of the rejection is thus respectfully requested.

**C. 35 U.S.C. §103(a) Rejection of Claims 2-13 Over Bauer in View of Henderer**

Claims 2-13 are rejected under 35 U.S.C. §103(a) over Bauer in view of U.S. Patent No. 7,147,413 to Henderer et al. ("Henderer"). The rejection is respectfully traversed.

Bauer and Henderer, alone or in a permissible combination, do not teach or suggest every feature of claims 2-13. As discussed above, Bauer does not teach or suggest every feature of claim 1. Henderer does not remedy the deficiencies discussed above with respect to claim 1. Henderer is cited by the Office Action for only its alleged teaching of a hardened, steel coated top with a concentricity tolerance. Claims 2-13 depend from claim 1.

Thus, for at least these reasons, claims 2-13 are patentable over Bauer and Henderer, for at least the same reason discussed above with respect to claim 1, as well as for additional features they recite. Withdrawal of the rejection is thus respectfully requested.

### **III. Conclusion**

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1-13 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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